REMARKS

Claim 13 stands objected to because of informalities: In response, Applicants amended claim 13 to delete from line 4 "at positions based from each other", and request withdrawal of the objection on this basis.

Claims 1-4, 21-22, and 24-25 stand rejected under 35 U.S.C. 103(a) as being obvious over Lal et al. (U.S. Patent No. 5,580,667), in view of Bertero et al. (U.S. Patent No. 6,150,015). In response, Applicants have amended claims 1-2 and 4 to clarify that the magnetic crystal layer at least partly excludes Cr atoms out of a lattice, and respectfully traverse.

The Lal et al. reference is directed to a multilayered medium with a gradient isolation layer. As the Examiner recognizes (see Paper No. 11, pg. 3, paragraph 6), Lal includes an area of magnetic property. Lal does not disclose or suggest a magnetic crystal layer that has Cr atoms at least partly excluded therefrom.

Bertero et al. discloses a magnetic recording layer having fine individual magnetic grains which are isolated from one another by a solid segregant such as excess Cr in CoCrPt base alloy. (See Col. 14, lns. 3-6). Applicants believe that the solid segregant of Bertero et al. corresponds to a non-magnetic wall that is established based on the non-magnetic element diffused along the grain boundary. However, the segregant of Bertero et al. is established based on the excess Cr in CoCrPt base alloy. As a result, Cr atoms of at least the saturation solubility level remain within a lattice. When the solubility of Cr atoms is

saturated within the lattice, the excess Cr tends to get diffused along the grain boundary. Thus, Bertero does not at least partly exclude Cr atoms from a lattice of the magnetic crystal layer.

In contrast, amended claims 1-2 and 4 further call for excluding a non-magnetic element at least partly out of a lattice of the magnetic crystal layer. As is apparent from FIG. 5 of the present application, the concentration of Cr atoms, or a non-magnetic element, can be set at 0% within the lattice in the magnetic crystal layer. Thus, the non-magnetic element diffuses along the grain boundary.

In addition, claim 1 calls for a layered polycrystalline structure comprising a non-magnetic crystal layer interposed between the seed crystal layer and the magnetic crystal layer. The non-magnetic property of the crystal layer is established even at the second concentration level, which is smaller than the first concentration level in the non-magnetic crystal layer. That is, the non-magnetic crystal layer directly contacts the bottom of the magnetic crystal layer. Accordingly, since the cited references fail to disclose or suggest exclusion of a non-magnetic element out of a lattice of the magnetic crystal layer, as recited in amended claims 1-2 and 4, withdrawal of the §103 rejection of independent claims 1-2 and 4, and their associated dependent claims 3, 21-22, and 24-25, is respectfully requested.

Claims 5, 13, and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lal et al. in view of Bertero et al., and further in view of Okumura et al. (U.S. Patent No. 5,700,593). Applicants respectfully traverse the rejection of claim 5 for the

reasons recited above with respect to the rejection of independent claim 4. Applicants traverse the rejection to claims 13 and 23 because the cited references do not disclose or suggest, among other things, each nucleation site being formed of an aggregation of atoms.

The nucleation sites of the present invention are spaced from each other on the surface of a substrate. Thus, the nucleation sites never form a continuous layer. In addition, the discontinuous nucleation sites contribute to reduction in size of the crystal grains and a continuous crystal layer covering the surface of the substrate. While it is accurate that Ti may form a continuous layer at a thickness of approximately 1.0nm, the Lal et al. reference fails to disclose or suggest any discontinuous layer. Forming a discontinuous layer depends on the material and thickness of the deposited layer. That is, discontinuous layer formation depends on the surface tension or surface energy between a deposited layer and an underlayer receiving the deposited layer. Accordingly, Applicants traverse the Examiner's conclusion in paragraph 29 of Paper No. 11 that layers less than 10nm thick are necessarily discontinuous, and that a 5nm thick layer must be a discontinuous layer and have individual sites separated from one another. For this reason, withdrawal of the §103 rejection of independent claim 13 and its respective depending claim 23 is respectfully requested.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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